

ON THE SYNONYMY OF SOME ZYGAENA
SPECIES, WITH DESCRIPTIONS OF A NEW
SPECIES AND SUBSPECIES FROM
MOROCCO, LEP., ZYGAENIDAE

BY

HUGO REISS *Kuf.*
Stuttgart

AND

W. GERALD TREMEWAN

Department of Entomology, British Museum (Natural History)



Pp. 457-468 ; *Plates* 22-25

BULLETIN OF
THE BRITISH MUSEUM (NATURAL HISTORY)
ENTOMOLOGY Vol. 9 No. 10
LONDON: 1960

THE BULLETIN OF THE BRITISH MUSEUM
(NATURAL HISTORY), *instituted in 1949, is
issued in five series, corresponding to the Departments
of the Museum, and an Historical series.*

*Parts will appear at irregular intervals as they become
ready. Volumes will contain about three or four
hundred pages, and will not necessarily be completed
within one calendar year.*

*This paper is Vol. 9, No. 10 of the Entomological
series.*

© Trustees of the British Museum, 1960

PRINTED BY ORDER OF THE TRUSTEES OF
THE BRITISH MUSEUM

Issued October, 1960

Price Nine Shillings

ON THE SYNONYMY OF SOME *ZYGAENA* SPECIES, WITH DESCRIPTIONS OF A NEW SPECIES AND SUBSPECIES FROM MOROCCO, LEP., ZYGAENIDAE

By HUGO REISS & W. GERALD TREMEWAN

WHILE on a visit to England, the senior author (H. R.) brought many types and cotypes of the genus *Zygaena* F. from his collection to compare with the types and other material in the collections of the British Museum (Natural History). The comparison of types has shown that many species, recently treated as subspecies by continental workers, are indeed good species. Through the course of our work new synonymy was discovered: this is discussed in detail below.

Subgenus *MESEMBRYNUS* Hübner

Zygaena rubricollis Hampson

Zygaena rubricollis Hampson, 1900, *J. Bombay nat. Hist. Soc.* 13 : 224, pl. B, fig. 9.

This species was described from a single female from the Shishi Kuh Valley, Chitral and is a species distinct from *manlia* Lederer as stated by Holik & Sheljuzhko (1954).

Zygaena afghanica Reiss

Zygaena rubricollis ssp. *afghanica* Reiss, 1940, *Ent. Z.* 54 : 105.

The genitalia of the type ♀ of *afghanica* were examined and compared with those of *rubricollis* Hamps. and we consider them to be distinct species. Holik & Sheljuzhko (1954) stated that *afghanica* undoubtedly belonged to *manlia* Led. and have treated it as a subspecies of that species. This is incorrect.

Zygaena manlia Lederer

Zygaena Manlia Lederer, 1869, *Horae Soc. ent. ross.* 6 : 87, pl. 5, fig. 7.

A female specimen of *manlia* was examined and the genitalia compared with those of the types of *rubricollis* Hamps. and *afghanica* Reiss. Alberti (1958) considered *rubricollis* to be a subspecies of *manlia*. This is incorrect as we found slight differences in the genitalia. The specimen of *manlia* that we examined is from the Zeller collection and is undoubtedly an authentic specimen and one that we believe Zeller

received from Lederer. It has the following data: "Zyg. manlia Astrabad Led. lit. 11/69".

Regarding *hindukuschi* Koch, which Alberti (1958) treats as a subspecies of *manlia*, we are not prepared to comment. Holik & Sheljuzhko (1954) regard it as a separate species, but one that is closely related to *manlia*.

Zygaena smirnovi Christoph

Zygaena smirnovi Christoph, 1884, in Romanoff, *Mémoires sur les Lépidoptères*, 1: 108.

A male cotype from the Christoph collection, labelled "J Nuchur" and a further male from the Reiss collection labelled "Smirnovi 1897 Chr. Askhabad" were examined. The genitalia of *smirnovi* differ considerably from those of *purpuralis* Brünnich and *diaphana* Staudinger and we think it better to treat it as a good species. It is considered to be a good species by Holik & Sheljuzhko (1953) but Alberti (1958) regards it as a subspecies of *purpuralis*. His illustrations of the genitalia of *smirnovi* do not agree with the genitalia of the cotype that we have examined, and we think that the specimens he illustrates are a subspecies of *purpuralis*.

In the original description of *smirnovi*, Christoph stated that the species was found in small numbers, usually at rest on the stems of *Eryngium* which could possibly be the foodplant.

Zygaena purpuralis Brünnich ssp. *barthai* Reiss

Zygaena purpuralis ssp. *barthai* Reiss, 1929, *Int. ent. Z.* 23: 148.

A male and a female, labelled "Asia min. c. Anatolia c. Aksehir Sultan Dagh 2200 m. vii. 34. coll. E. Pfeiffer, München" were dissected and the genitalia show that *barthai* is undoubtedly a subspecies of *purpuralis*.

Zygaena diaphana Staudinger ssp. *clavigera* Burgeff

Zygaena purpuralis var. *clavigera* Burgeff, 1914, *Mitt. münchen. ent. Ges.* 5: 44.

The genitalia of a male cotype, labelled "Akbès, Syria", ex. coll. Burgeff, were examined and compared with the genitalia of an original specimen of *diaphana* Stdgr. (ex. Zoologisches Museum, Berlin). It was found that *clavigera* is conspecific with *diaphana*; it should now be treated as a subspecies of that species. Alberti (1958) separates *diaphana* Stdgr. as a good species from *purpuralis* Brünn., with which we agree. Holik & Sheljuzhko (1953) have kept all the subspecies of *diaphana* and *purpuralis* under one species. However, as there are good differences in the genitalia of some of the subspecies, which fall naturally into two groups, we feel justified in separating them into two species. The *purpuralis*-*diaphana* complex is one of the most difficult groups in the genus but we believe that if a complete knowledge of the biology of the insects were known the problem would be greatly simplified.

***Zygaena diaphana* Staudinger ssp. *chamurli* Koch**

Zygaena purpuralis ssp. *chamurli* Koch, 1934, *Iris*. 48 : 192.

A male labelled "Armenia, Khashkhash-Dagh, Geröll-Südabhang. 3200 m. 1-10. 7. leg. Kotsch 1934", was examined and the genitalia agree with those of *diaphana*. According to Koch, the specimens from Khashkhash-Dagh are smaller than the nominate race from Chamurli Dagh.

***Zygaena diaphana* Staudinger ssp. *martirosensis* Koch**

Zygaena purpuralis ssp. *martirosensis* Koch, 1942, *Iris*. 56 : 95.

A male cotype labelled "Armenia ross. Martiros, 1800 m. Mai" was examined and the genitalia agree with those of *diaphana* Stdgr.

Subgenus **AGRUMENIA** Hübner***Zygaena afghana* Moore**

Zygaena afghana Moore, 1858/9, *Cat. Lep. East-Indian Mus.* 2 : 286, pl. 7A, fig. 1.

The type of this species is badly faded, but an examination of the genitalia showed this species to be distinct from *mangeri* Burgeff. Compared with this species, *afghana* is much paler and with the red of a light carmine or yellowish-pink, according to fresh material in the British Museum with data as follows: "AFGHANISTAN: Arbarp. 10 miles W. of Kabul. 27.vi.1939. J. L. Chaworth-Musters B.M. 1946: 72." The genitalia of the males of *afghana* and *mangeri* are similar but the horns of the uncus of *mangeri* are more pointed and rather longer. The female genitalia have quite good differences. In *afghana*, the ostium is broad and the ductus bursae is straight. In *mangeri* however, the ostium is narrower and the ductus bursae has a constriction on one side, just below the ostium, and another a third of the way from the ostium.

***Zygaena mangeri* Burgeff**

Zygaena mangeri Burgeff, 1927, in *Bang-Haas, Hor. Macrolep.* 1 : 55.

As stated above, *mangeri* is a species distinct from *afghana*. Alberti (1958) considered them to be conspecific and had seen the type of *afghana* in the British Museum. Apparently however, he had not compared the genitalia of *afghana* with those of *mangeri*. Holik & Sheljuzhko (1956) correctly treated them as separate species. Two cotypes of *mangeri*, a male and a female from the Reiss collection, were compared with the type and fresh material of *afghana*. The data of *mangeri* is as follows: "Paghman Gbg, Kabul, Afghanistan"

Zygaena rothschildi Reiss

Zygaena rothschildi Reiss, 1930, *Seitz, Suppl.* 2 : 22.

This species, which Alberti (1958) suggested might be a subspecies of *magiana* Stgr., is undoubtedly a good species. The genitalia of the type were examined and found to differ greatly from those of *magiana*. In *rothschildi*, the horns of the uncus are longer and more slender, while in *magiana* and its ssp. *hissariensis* Gr.-Gr., these horns are short and thick. In *rothschildi*, the aedoeagus is longer and the dorsal rasp (lamina dorsalis) is narrower than that in *magiana*. Holik & Sheljuzhko (1956) treat *rothschildi* correctly as a good species.

Zygaena rothschildi Reiss ab. *latecincta* ab. nov.

♂. 27 mm. Head, thorax and abdomen black. Thorax with faint trace of scarlet on the sides of the pronotum. Abdomen with traces of a scarlet belt. Legs yellowish-brown mixed with black.

Fore wings black; spots 1 and 2 scarlet and confluent, spot 2 edged with pale yellow. Spots 3, 4 and 5 separate, scarlet in colour and widely ringed with pale yellow. Spot 6 scarlet, lower half pale yellow. Hind wings scarlet with blue-black border, wide at the apex and middle of termen, terminating at the tornus. Cilia of fore wings brown. Cilia of hind wings dark purplish-brown.

Holotype ♂. "Ulaxs capa 24.vii.92"; "Mtes Hissar:"; "R.Yagnob.;" "Coll. Groum-Grschimailo." ex. Rothschild collection.

The holotype is in the British Museum collections.

This, the second specimen of *rothschildi*, differs superficially from the type and we describe it as an aberration. Whether this form is a true aberration and the type the normal form we do not know.

Zygaena rothschildi Reiss ssp. *nuksanensis* Koch

Zygaena nuksanensis Koch, 1937, *Ent. Z.* 51 : 61.

Alberti (1958) and Holik & Sheljuzhko (1956) treated *nuksanensis* as a good species, but none of them had seen the type of *rothschildi*. We were able to compare a male cotype of *nuksanensis* from the Reiss collection with the type of *rothschildi*, and on comparing the genitalia, we found them to be conspecific. The data of the *nuksanensis* is as follows: "Nord-Ost-Hindukush Nuksan-Pass-Nordseite Alpenwiesenzone 3500-4000 m. Mitte Juli leg. H. & E. Kotzsch 1936."

Zygaena rothschildi Reiss ssp. *andarabensis* Koch

Zygaena nuksanensis ssp. *andarabensis* Koch, 1938, *Ent. Z.* 51 : 399.

This subspecies was originally described by the author as a subspecies of *nuksanensis*. Holik & Sheljuzhko (1956) have also treated it as a subspecies of

nuksanensis. We have not been able to examine material of *andarabensis*, but if it is conspecific with *nuksanensis*, it must now be treated as a subspecies of *rothschildi*. Alberti (1958) figures the genitalia of *andarabensis* and his illustration agrees completely with the genitalia of the type of *rothschildi*.

Zygaena excelsa Rothschild

Zygaena marcuna (*sic*) *excelsa* Rothschild, 1917, *Novit. zool.* **24** : 340.

This species was described by Rothschild as a subspecies of *marcuna* Oberthür, but on comparing the genitalia of the type with the genitalia of the lectotype of *marcuna*, we found that *excelsa* is a distinct species. It is however, more closely related to *alluaudi* Oberthür. Differences in the genitalia were found to be constant. In the aedoeagus of *excelsa*, the ventral rasp (lamina ventralis) is narrower than that in *marcuna* and the spines are longer. In the female genitalia of *excelsa*, the ostium is narrower than the ostium in *marcuna* and the sclerotization extends further down into the ductus bursae.

The species was described from the Djebel Mekter.

Zygaena alluaudi Oberthür

Zygaena Alluaudi Oberthür, 1922, *Lép. Comp.* **19** : 159, pl. 545, figs. 4583, 4584.

This species was placed as a subspecies of *excelsa* by the senior author (Reiss, 1930), but a comparison of the types has shown that *alluaudi* is a good species. In the male genitalia of *alluaudi*, the lamina ventralis of the aedoeagus is narrower with long, heavily sclerotized spines, while in *excelsa* the lamina ventralis is broader with shorter spines. The female genitalia of the two species are similar, but the ostium of *alluaudi* is rather smaller than the ostium of *excelsa*.

The species was described from Bou Angher. The specimen figured on the accompanying plate is designated a lectotype.

Lectotype ♂. "Bou Angher 2000 m Alluaud 82"; "*Zygaena alluaudi* n. sp."; "coll. Ch. Oberthür." ex. Rothschild collection.

Zygaena marcuna Oberthür

Zygaena marcuna, (Stdgr. in litteris) Oberthür, 1888, *Etud. d'Ent.* **12** : 27.

As shown above, *marcuna* is distinct from *excelsa*, and is also a different species from *alluaudi* as treated by Alberti (1958).

Oberthür described *marcuna* from Lambessa. The specimen figured on the accompanying plate is designated a lectotype.

Lectotype ♂. "Marcuna Stgr Lambèze Staud. 1887 Marcouna, mi mai"; "4/5"; "Etud. d'Entom. XIIIe liv'on pl. 7, fig. 58." On the reverse side of the latter label is a photograph of the specimen "coll. Ch. Oberthür." ex. Rothschild collection.

***Zygaena orana* Duponchel ssp. *hajeensis* ssp. nov.**

Zygaena orana ssp. *media* Rothschild, Reiss nec Rothschild, 1930, *Seitz, Suppl. 2* : 26.

Zygaena orana var. *rothschildiana* Reiss, 1930, *Seitz, Suppl. 2* : 26 (*partim*).

♂. 23 mm. Head, thorax and abdomen black. Antennae black. Legs black with faint traces of brown.

Fore wings black with bluish-green sheen. Spots clear scarlet, narrowly encircled with cream. Spot 6 without a cream ring. Hind wings clear scarlet with a fairly wide blue-black border, widest at apex and middle of termen, becoming narrow along the inner margin. Underside like the upperside but without the cream rings around the spots.

♀. 25 mm. Coloration as in the male, but spots larger and more strongly encircled with cream; a trace of cream around spot 6. Legs light brown mixed with black.

Holotype ♂. "El Hajeb, W. slopes of Middle Atlas, Maroc, 17.iv.1929. (E. Hartert)." ex. Rothschild collection.

Allotype ♀ with the same data as the holotype.

Paratypes : 19 ♂ and 3 ♀ with the same data as the holotype ; 1 ♂ and 2 ♀ "El Hajeb, Mittel Atlas, 900-1000 m., 16.4.1929 leg. Ungemach (Museum Paris)"; 1 ♂ "Ain Leuh, südlich El Hajeb, 1600-1700 m., 22.5.1924, leg. Ungemach".

Further specimens from El Hajeb and Ain Leuh are to be found in the Paris Museum. The holotype, allotype and 20 paratypes are in the British Museum collection, 6 paratypes are in collection Reiss.

***Zygaena youngi* Rothschild**

Zygaena youngi Rothschild, 1925, *Bull. Soc. Sci. nat. Maroc. 5* : 338.

Zygaena orana media Rothschild, 1925, *Bull. Soc. Sci. nat. Maroc. 5* : 338.

Zygaena orana var. *rothschildiana* Reiss, 1930, *Seitz, Suppl. 2* : 26 (*partim*), (new name for *media* Roths. [preoccupied].).

The types of *youngi* and *media* have been examined and found to be conspecific. They were both described on the same page, *media* having been described first. The name *rothschildiana* was applied to *media* Rothschild, which is preoccupied by *media* Reiss, but as *media* Roths. was invalid at the time of publication, then only *youngi* can be taken as the valid name.

When the name *rothschildiana* was published in 1930 (Reiss, 1930), the author did not have the type of *media* before him and the specimens he had were indeed a true subspecies of *orana*. This subspecies of *orana*, which until now has been known under the names of *media* Roths. and *rothschildiana* Reiss, is undescribed and we have described it above as new.

***Zygaena harterti* Rothschild**

Zygaena harterti Rothschild, 1925, *Bull. Soc. Sci. nat. Maroc. 5* : 338.

The genitalia of the types of *harterti* and *youngi* have been compared and we consider them to be distinct species. Rothschild described *harterti* from seven speci-

mens taken at Azrou at 1,300 m. ; *youngi* was described from a single male taken above Azrou at 1,800 m. As stated above all the specimens of *media* were *youngi*, and although taken at a different locality, viz. Lake Sidi Ali and Aghbalu Larbi, we consider them to be the nominate race. Alberti (1958) considered *youngi* and *harterti* to be conspecific and placed them as subspecies of *maroccana* Roths. ; with this we do not agree. The female genitalia of *youngi* and *harterti* have been compared with the genitalia of the type of *maroccana* and found to be different.

Zygaena maroccana Rothschild

Zygaena carniolica maroccana Rothschild, 1917, *Novit. zool.* 24 : 342.

The genitalia of the type were badly damaged before dissection and only the ostium and IX sternite remain.

The specimen figured by the senior author as *maroccana* Roths. (Reiss, 1943) has been examined and compared with the types of *maroccana* Roths. and *lucasi* Le Charles. It was found to be conspecific with *lucasi*. It has the following data : "Museum Paris Maroc Dard Goundafi P. Pallary 1914". This specimen is in the Muséum National d'Histoire Naturelle, Paris. There are two further specimens with the same data, one from the Paris Museum, the other from the Reiss collection, Stuttgart. An examination of the genitalia of these two specimens show that they are a species distinct from both *lucasi* and *maroccana* ; we describe them below as new.

Zygaena gundafica sp. nov.

Zygaena maroccana Rothschild, Reiss nec Rothschild, 1943, *Z. wien. ent. Ges.* 28 : 359 (*partim*).

♀ 29 mm. Head, thorax and abdomen greenish-black. Antennae black and very strongly clubbed. Legs brownish-black.

Fore wings dark greenish-black ; spots clear carmine, 1 and 2 confluent, 3 and 4 confluent. Spot 1 extending along costa and confluent with spot 3 ; spots 5 and 6 separate. The spots are encircled with narrow whitish rings, except spot 6. Hind wings clear carmine, with a narrow blue-black border widest at apex and terminating just before the tornus. Cilia blue-black.

Holotype ♀ "Museum Paris, Maroc, Dard Goundafi P. Pallary 1914", in collection Reiss.

Paratype : 1 female with the same data as the holotype, in Muséum National d'Histoire Naturelle, Paris.

Z. gundafica is closely related to *lucasi* Le Charles, but as no males of *gundafica* are available, we have been unable to compare the genitalia with that of a male *lucasi*. A conspicuous character of *gundafica* is found in the antennae, which are heavily clubbed ; this character is unusual in the females of the genus *Zygaena*, but is commonly found in the males. In genitalia, *gundafica* differs from *lucasi* in having the ostium very broad and straight ; in *lucasi* the ostium is broad but crescent-shaped. The ostium of *maroccana* is narrow and slightly curved with the lower

portion projecting almost to a point. *Z. maroccana* differs in superficial characters in having the red coloration of a scarlet shade whereas in *gundafica* and *lucasi* the red is of a carmine shade.

Subgenus *ZYGAENA* Fabricius

Zygaena laphira Herrich-Schäffer

Zygaena Laphira Herrich-Schäffer, 1851, *Schmett. Europa*, 2, pl. 16, fig. 108.

Zygaena Laphria Herrich-Schäffer, 1852, *Schmett. Europa*, 6: 44.

Zygaena Ledereri Rebel, 1901, in Staudinger & Rebel's *Cat. Lep.*, p. 385 (1901), (new name for *laphria* H.-S.).

Zygaena cilicica Burgeff, 1926, *Mitt. münchen. ent. Ges.* 16: 65, (new name for *ledereri* Rebel [preoccupied]).

It is unfortunate that Herrich-Schäffer's description of 1852 has been given priority over his figure of 1851 as Rebel proposed *ledereri* as a new name for *laphria* H.-S., because the accepted date for the latter name was 1856. It was understood that *laphria* H.-S. was preoccupied by *laphria* Freyer, 1852. However, as *ledereri* Rebel was already preoccupied by *ledereri* Rambur, 1858, Burgeff in 1926 proposed the new name of *cilicica*. According to the rules of nomenclature, the figure of *laphira* H.-S., 1851 is valid, so all subsequent names must be treated as synonyms as shown above.

Zygaena amanica Reiss

Zygaena amanica Reiss, 1935, *Int. ent. Z.* 29: 191.

Zygaena ledereri Rebel, Dziurzynski nec Rebel, 1908, *Berl. ent. Z.* 53: 43.

Zygaena cilicica Burgeff, Reiss nec Burgeff, 1930, *Seitz, Suppl.* 2: 32, pl. 3 h.

A female specimen of *laphira* H.-S. from the Zeller collection has been examined. Zeller received this specimen from Lederer and we believe it to be an authentic specimen. It has the following data: "Laphira Amasia Led. lit. 11/62". The genitalia of this specimen were compared with those of an *amanica* Reiss cotype ♀ with the following data: "Syria s. Amanus s. (Düldül Dagh) Jeschildere vi. 33. Coll. Pfeiffer München." Differences were found in the ostium and ductus bursae. In *laphira*, the ostium is narrower than that in *amanica*. The first portion of the ductus bursae in *laphira* is heavily sclerotized and may be described as flat and triangular in shape but in *amanica* the ductus bursae is tubular and not quite so heavily sclerotized. The spines of the signum in *amanica* are larger than those of *laphira*, and are arranged in groups of from three to six, and also singly. The spines in *laphira* are usually arranged singly or in groups of two or three.

Alberti (1958) places *amanica* as a subspecies of *cilicica* Bgff. (*laphira* H.-S.) but because of the slight differences in the female genitalia we consider them to be distinct, but closely related species. The relationship between *amanica* and *laphira* is comparable with that of *trifolii* Esp. and *loniceræ* Scheven.

Holik & Sheljuzhko (1957) consider *amanica* to be synonymous with *cilicica* Bgff., and for what we consider to be *laphira* H.-S., they have used the name *laphria*

Freyer. Freyer described *laphria* from a specimen from the Caucasus and we consider it to be an aberration of *achilleae* Esper. We cannot see that *laphria* Freyer has any connection with either *amanica* Reiss or *laphira* H.-S. as neither of the latter species are found in the Caucasus.

***Zygaena filipendulae* Linné ssp. *ramburii* Herrich-Schäffer**

Zygaena ramburii Herrich-Schäffer, January 1861, *Neue Schmett.*, p. 32, figs. 161, 162.
Zygaena Ramburi Lederer, May, 1861, *Wien. ent. Mschr.* 5 : 151, pl. 1, fig. 10.

Apparently no-one has noticed before that *ramburii* H.-S. was published in January, 1861, four months before *ramburi* Lederer, the latter name appearing in May, 1861. Until now, *ramburii* H.-S. has been treated as a synonym of *ramburi* Led., but now this synonymy must be reversed, and *ramburii* H.-S. taken as the valid name.

***Zygaena filipendulae* Linné ssp. *ramburii* H.-S. ab. *rosa* Oberthür**

Zygaena rosa Oberthür, 1909, *Lép. Comp.* 3 pl. 22, figs. 106, 107.

We believe *Zygaena rosa* Oberth. to be an aberration of *filipendulae* ssp. *ramburii* H.-S. and treat it as such. We have examined the syntypes of *rosa* in the Oberthür collection. These specimens were taken at Akbès, Syria. Also in the Oberthür collection there is a series of *ramburii* H.-S. taken at Akbès by the same collector.

Holik & Sheljuzhko (1958) use the name of *ramburi* Led. and treat it as a separate species while they consider *rosa* Oberth. to be a subspecies of *ramburi*. Alberti (1958) treats *ramburi* Led. (*ramburii* H.-S.) under *filipendulae* Linné. Whether *ramburii* H.-S. is a separate species from *filipendulae* we do not know; we could find very little difference in the genitalia. However, it is of interest to note that in the Oberthür collection there is a series of *filipendulae* which were also taken at Akbès, Syria. These specimens, which Oberthür described as *syriaca*, were also taken by the same collector who took the specimens of *ramburii* H.-S. and *rosa* Oberth.

***Zygaena filipendulae* Linné ssp. *mersina* Herrich-Schäffer**

Zygaena mersina Herrich-Schäffer, January, 1861, *Neue Schmett.*, p. 32, fig. 163.
Zygaena gurda Lederer, May, 1861, *Wien ent. Mschr.* 5 : 152, pl. 1, fig. 9.

The same ruling must be applied to *mersina* H.-S. and *gurda* Led. must now fall as a synonym, having been published four months later. Holik & Sheljuzhko (1958) treat *gurda* Led. as a subspecies of *ramburi* Led. We have been unable to examine specimens of *mersina* as there are none in the British Museum. Holik & Sheljuzhko (1958 : 195) mention 17 examples in the Oberthür collection which Oberthür regarded as *gurda* Led. We have examined these specimens and found them to be *amanica* Reiss.

Zygaena filipendulae Linné ssp. *syriaca* Oberthür

Zygaena Syriaca Oberthür, 1896, *Et. d'Ent.* 20 : 46, pl. 8, figs. 136-138.

Oberthür considered *ramburii* H.-S. different from *ramburi* Led. and, believing the Herrich-Schäffer name to be later, applied the name *syriaca* to the species figured by himself and Herrich-Schäffer. We have examined the type material of *syriaca* in the Oberthür collection and find that it is not the same form as *ramburii* H.-S. Holik & Sheljuzhko (1958) regard it as a subspecies of *filipendulae* with which we agree.

In conclusion, we would like to thank Mr. P. Viette for the loan of the types of *Zygaena lucasi* Le Charles and other material in the Muséum National d'Histoire Naturelle, Paris. Also our thanks to Dr. V. I. Kuznetsov, Zoological Institute, Leningrad, for the loan of the cotype of *Z. smirnovi* Chr.

To Mr. Willi Richter, Stuttgart, we are indebted for the photographs of the specimens illustrated on Pl. 1, figs. 4, 5, 6, 16, 18, 21, and for photomicrographs of some of the genitalia. The rest of the specimens were photographed in the photographic studio of the British Museum. These specimens were enlarged $\times 2$, to reproduce the specimens natural size on the plates. The photographs taken by Mr. Richter were rather more than twice natural size, hence the discrepancy in size of the two figures of *Z. smirnovi*. The same applies to the figures of *Z. mangeri* Bgff., *Z. gundafica* Reiss & Tremewan and *Z. amanica* Reiss.

REFERENCES

- ALBERTI, B. 1958. Über den stammesgeschichtlichen Aufbau der Gattung *Zygaena* F. und ihrer Vorstufen (Insecta, Lepidoptera). *Mitt. zool. Mus. Berl.* 34 (2) : 245-396.
 — 1959. *Ibid.* 35 (1) : 203-242.
 HOLIK, O. & SHELJUZHKO, L. 1953. Über die Zygaenen-Fauna Osteuropas, Kleinasien, Irans, Zentralasiens und Sibiriens. *Mitt. münchen. ent. Ges.* 43 : 102-226.
 — 1955. *Ibid.* 44/45 : 26-158.
 — 1956. *Ibid.* 46 : 93-239.
 — 1957. *Ibid.* 47 : 143-185.
 — 1958. *Ibid.* 48 : 166-285.
 REISS, H. 1930. Zygaenidae, *Seitz, Macrolep., Suppl.* 2 : 1-50, Nachtrag (1933) : 249-278.
 — 1943. Die Zygaenen Marokkos, insbesondere die vom Mittelatlas und vom Rifgebirge. *Z. wien. ent. Ges.* 28 : 305.

